BNZ RGB

LED MODULE

MODEL NO. Z435

DIGITAL SIGNAGE | CHANNEL LETTERS

Providing Better Solutions

12V DC IP65 55LM 160°

BNZ RGB LED MODULE

Model Number: Z435

WATERPROOF PROTECTION

DIGITAL SIGNAGE | CHANNEL LETTERS

Providing Better Solutions

12V DC | IP65 / IP66 | 55LM | 160° | 160°

Product Overview

BNZ RGB MODULE 0.72W is a high-performance 12V DC RGB LED module designed for signage, decorative lighting, channel letters, and dynamic illumination applications.

Equipped with premium 5050 SMD LEDs and a wide 160° beam angle, the module delivers smooth and vibrant RGB color mixing with uniform light distribution.

Its ultrasonic sealed construction provides enhanced durability and waterproof protection, making it suitable for both indoor and outdoor installations.

The compact design, low power consumption, and stable performance make it ideal for modern RGB signage applications.

Key Features

- Integrated **2811** IC pixel control
- Premium **5050** SMD RGB LEDs
- **Dynamic** programmable RGB effects
- Low power consumption **(0.2W)**
- Suitable for **indoor & outdoor** applications
- **2 Years** Warranty
- Wide **160°** beam angle for uniform illumination
- **Ultrasonic** waterproof construction
- **Compact** and **lightweight** design

Available Colors

Multi-colors | Red, Blue, Green, Yellow, Pink, Orange, Purple

RGB Module • Technical Specifications

Electrical Specifications	
Model no.	Z435
Power Consumption	0.72W / Module
Input Voltage	12V DC
Luminous Output	55LM / Module
Beam Angle	160°
LED Type	5050 SMD RGB
IC Type	2811 IC
IP Rating	IP65 / IP66*
Operating Type	Constant Voltage
Maximum Series Run	20 Modules
Warranty	2 Years
*IP Rating can be adjusted as per actual product specification.	
Mechanical Specifications	
Housing Type	Ultrasonic Sealed Body
Mounting Type	Adhesive Tapes / Screws
Construction	Injection Molded
Application Type	Indoor and Outdoor
Ultrasonic sealing improves waterproof reliability and product life.	

Applications

- RGB Channel Letters
- Decorative Sign Boards
- Edge Lighting
- Architechtural Lighting
- Acrylic Signage
- Event and Accent Lighting

Illumination Benefits

- Wide-angle light spread reuces shadowing
- Smooth RGB color blending
- Reduced module consumption in signage applications
- Uniform brightness across illuminated surfaces

Certifications & Compliance

Recommended Wiring Layout

- Maximum 20 Modules per series connection.
- Use regulated 12V DC power supply.
- Inject power every 20 modules.
- Maintain correct RGB controller polarity. (+ / -)
- Use minimum 18AWG (0.75 sqmm) cable.
- Keep long wire runs minimal to reduce voltage drop.

For Large Installations,

- Use parallel power injection for stable RGB performance and color consistency.

Power Supply Wattage Calculation (With 20% Margin)

Formula:

Recommended PSU Wattage = (Number of LEDs × 0.72W) × 1.2

Example:

If 200 Modules are used:

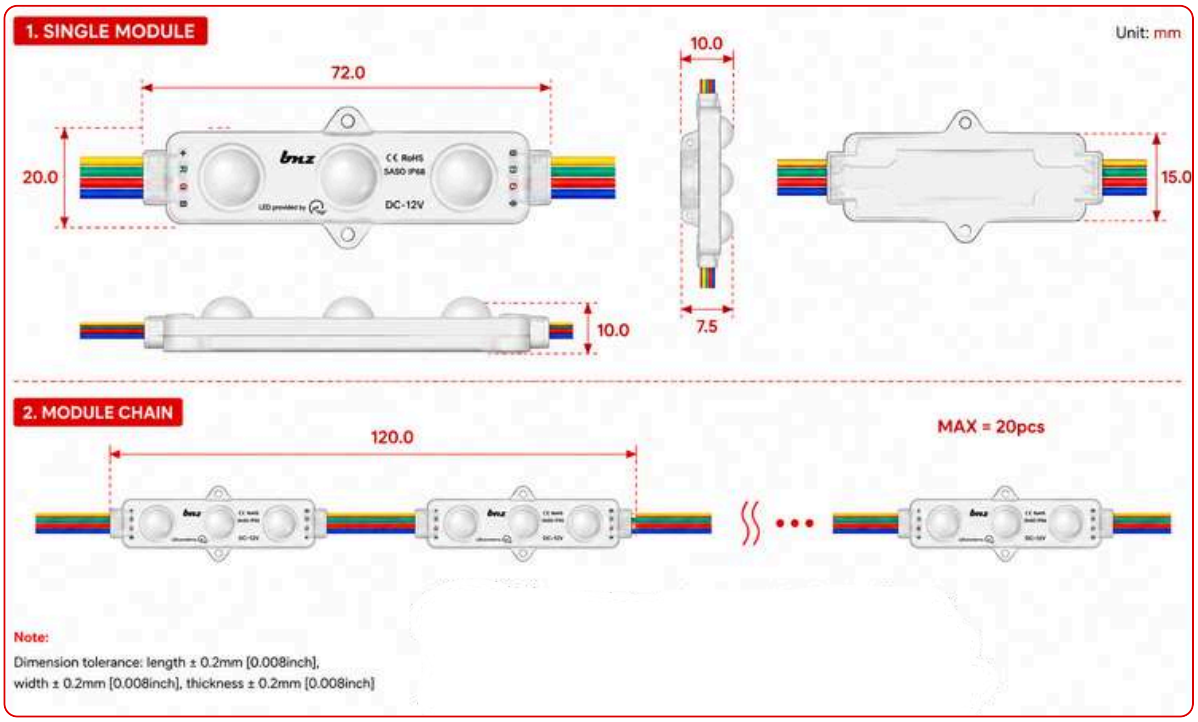
200 x 0.72W = 144W

100W x 1.2 = 172.8W

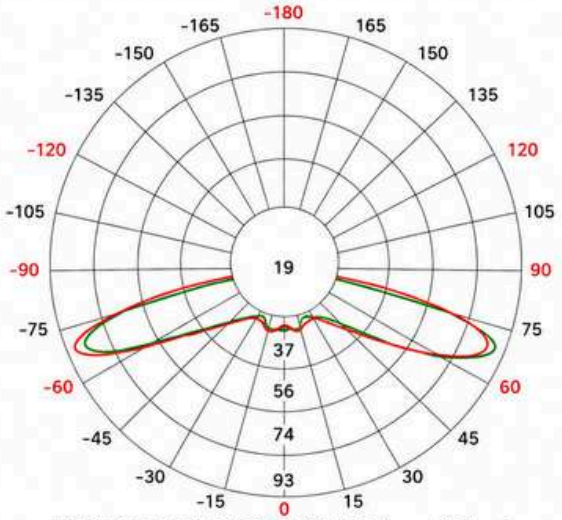
Recommended PSU = **200W 12V**

Always select next higher standard driver rating.

Luminous Intensity Distribution Analysis



LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE ILLUMINATION

CCT = RGB DYNAMIC

Distance	Average Illuminance	Beam Diameter
0.2m	68 lx	57.4 cm
0.4m	17 lx	114.8 cm
0.6m	8 lx	172.2 cm
0.8m	4 lx	229.6 cm
1.0m	3 lx	287.0 cm
1.2m	2 lx	344.4 cm
1.4m	1 lx	401.8 cm
1.6m	1 lx	459.2 cm
1.8m	0.8 lx	516.6 cm
2.0m	0.6 lx	574.0 cm

Beam Angle: 160°

Wattage: 0.72W / Module

Beam Angle: 160°

Luminous Flux: 55 LM / Module

Note: The above data is tested based on BNZ RGB IC 2811 Series at 12V DC.
Actual performance may vary depending on controller and installation conditions.

Packaging Details

Packaging Type	Quantity
Inner Box	200 Modules
Outer Box	2000 Modules

Attention before installation

- Before installation, check that the product parameters are consistent with the requirements. (Seeing product specifications or product labels)
- Load voltage, current power and power supply should be matched with the product.
- Follow the instructions of wiring diagram (first connect the load and then the power supply) to avoid short circuit.
- Make sure the correct connection of positive and negative poles between products and power supply. Otherwise, the LEDs do not turn on.
- Make sure the power cord firmly screwed into the terminal and a should not be pulled out by hands.
- The terminal should have insulation waterproof and anti-corrosive treatment.
- After installation, the fabric light box must be covered with cloth within 48 hours.
- Please avoid leaving the light box idle for a long time.

Important Installation Notes

- Use only regulated 12V DC power supply.
- Avoid overloading series connections.
- Ensure compatibility with 2811 pixel controller
- Maintain proper data signal direction.
- Seal all exposed wire joints properly.
- Test pixel programming before final installation.
- Installation should be performed by trained technicians.

Warnings

- Do not disassemble or retrofit the light. Do not touch the surface of the light with a sharp object.
- Do not do live-line working during installation especially for high voltage product.
- Do not use any organic chemical solvents Use neutral glass adhesive to fix this product and it needs to be dried 24 hours in the open environment after operation.
- Treat the ends and the circuit connection points that are not connected to the main line with insulation, waterproof, and anti-corrosion in the installation.
- Use 18AWG (0.75mm² cross-sectional area) or thicker core wire to avoid adverse consequences caused by overheating, if the power cable need to lengthen.
- Make sure the input voltage meets the requirements and lines are connected correctly before lighting on.
- This product is for signage, and do not use as general lighting.
- Series connection within the maximum run.
- The length of the power cable between the power supply and the led strip should not exceed 2m. Otherwise, large circuit loss will lead to inconsistent brightness.
- Installation, maintenance and repair should be operated by a qualified technician.

Statements

- Repair should be operated by a qualified technician, if the external circuit or main line of this product is damaged.
- The parameters given in this manual are typical values and for reference only.
- All illustrations and drawings in this manual are for reference.
- This product is subject to change without notice.

Recycling

- LED lighting products belongs to electronic products, please do recycling treatment according to the relevant WEEE directives.

Common Faults and Troubleshoot

Quick Guide		
Problems	**Reasons**	**Solutions**
All LEDs can not light ON	No electric supply	Fix the short circuit problem
	Automatic power protection from the open or short circuit in output of the power supply	
	Wrong connection of power supply	
LEDs can not light on partly	Some switching mode power supplies are not powered	Correctly connection
	Power supply line error	
	Mistaken wire connection of some of products	
Brightness of LED is inconsistent or insufficient	Power overloaded	Replace with more powerful power
	Power supply circuit excessive consumption	Make sure the working voltage of the product within 25% of standard voltage, or keep balance by circuit power consumption
	Excessive quantities in series connection of the product	Reduce the quantities of the product in series connection to meet requirement
LED flicker	Connection point fault	Remove bad connection point
	Switching power supply failure	Replace a new power supply
	Wrong Installation or use of products	Please follow the instructions